



SEQUENCE LISTING

<110> Regents of the University of California
Zanetti, Maurizio

<120> A Universal Vaccine and Method for Treating Cancer Employing
Telomerase Reverse Transcriptase

<130> SD2001-051

<140> 09/788,110

<141> 2001-02-15

<150> 60/182,685

<151> 2000-02-15

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<170> PatentIn version 3.0

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35 40 45

Ala Leu Val Ala Gln Cys Leu Val Cys Val Pro Trp Asp Ala Arg Pro
50 55 60

Pro Pro Ala Ala Pro Ser Phe Arg Gln Val Ser Cys Leu Lys Glu Leu
65 70 75 80

Val Ala Arg Val Leu Gln Arg Leu Cys Glu Arg Gly Ala Lys Asn Val
85 90 95

Leu Ala Phe Gly Phe Ala Leu Leu Asp Gly Ala Arg Gly Gly Pro Pro
100 105 110

Glu Ala Phe Thr Thr Ser Val Arg Ser Tyr Leu Pro Asn Thr Val Thr
 115 120 125
 Asp Ala Leu Arg Gly Ser Gly Ala Trp Gly Leu Leu Leu Arg Arg Val
 130 135 140
 Gly Asp Asp Val Leu Val His Leu Leu Ala Arg Cys Ala Leu Phe Val
 145 150 155 160
 Leu Val Ala Pro Ser Cys Ala Tyr Gln Val Cys Gly Pro Pro Leu Tyr
 165 170 175
 Gln Leu Gly Ala Ala Thr Gln Ala Arg Pro Pro Pro His Ala Ser Gly
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 Pro Arg Arg Arg Leu Gly Cys Glu Arg Ala Trp Asn His Ser Val Arg
 195 200 205
 Glu Ala Gly Val Pro Leu Gly Leu Pro Ala Pro Gly Ala Arg Arg Arg
 210 215 220
 Gly Gly Ser Ala Ser Arg Ser Leu Pro Leu Pro Lys Arg Pro Arg Arg
 225 230 235 240
 Gly Ala Ala Pro Glu Pro Glu Arg Thr Pro Val Gly Gln Gly Ser Trp
 245 250 255
 Ala His Pro Gly Arg Thr Arg Gly Pro Ser Asp Arg Gly Phe Cys Val
 260 265 270
 Val Ser Pro Ala Arg Pro Ala Glu Glu Ala Thr Ser Leu Glu Gly Ala
 275 280 285
 Leu Ser Gly Thr Arg His Ser His Pro Ser Val Gly Arg Gln His His
 290 295 300
 Ala Gly Pro Pro Ser Thr Ser Arg Pro Pro Arg Pro Trp Asp Thr Pro
 305 310 315 320
 Cys Pro Pro Val Tyr Ala Glu Thr Lys His Phe Leu Tyr Ser Ser Gly
 325 330 335
 Asp Lys Glu Gln Leu Arg Pro Ser Phe Leu Leu Ser Ser Leu Arg Pro
 340 345 350
 Ser Leu Thr Gly Ala Arg Arg Leu Val Glu Thr Ile Phe Leu Gly Ser

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Ala	Gln	Cys	Pro	Tyr	Gly	Val	Leu	Leu	Lys	Thr	His	Cys	Pro	Leu	Arg
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Ala	Ala	Val	Thr	Pro	Ala	Ala	Gly	Val	Cys	Ala	Arg	Glu	Lys	Pro	Gln
				420				425				430			
Gly	Ser	Val	Ala	Ala	Pro	Glu	Glu	Glu	Asp	Thr	Asp	Pro	Arg	Arg	Leu
				435				440				445			
Val	Gln	Leu	Leu	Arg	Gln	His	Ser	Ser	Pro	Trp	Gln	Val	Tyr	Gly	Phe
				450				455				460			
Val	Arg	Ala	Cys	Leu	Arg	Arg	Leu	Val	Pro	Pro	Gly	Leu	Trp	Gly	Ser
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Arg	His	Asn	Glu	Arg	Arg	Phe	Leu	Arg	Asn	Thr	Lys	Lys	Phe	Ile	Ser
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Leu	Gly	Lys	His	Ala	Lys	Leu	Ser	Leu	Gln	Glu	Leu	Thr	Trp	Lys	Met
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Ser	Val	Arg	Asp	Cys	Ala	Trp	Leu	Arg	Arg	Ser	Pro	Gly	Val	Gly	Cys
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Val	Pro	Ala	Ala	Glu	His	Arg	Leu	Arg	Glu	Glu	Ile	Leu	Ala	Lys	Phe
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Leu	His	Trp	Leu	Met	Ser	Val	Tyr	Val	Val	Glu	Leu	Leu	Arg	Ser	Phe
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Phe	Tyr	Val	Thr	Glu	Thr	Thr	Phe	Gln	Lys	Asn	Arg	Leu	Phe	Phe	Tyr
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Arg	Lys	Ser	Val	Trp	Ser	Lys	Leu	Gln	Ser	Ile	Gly	Ile	Arg	Gln	His
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Leu	Lys	Arg	Val	Gln	Leu	Arg	Glu	Leu	Ser	Glu	Ala	Glu	Val	Arg	Gln
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His 610	Arg	Glu	Ala	Arg	Pro	Ala 615	Leu	Leu	Thr	Ser	Arg 620	Leu	Arg	Phe	Ile
Pro 625	Lys	Pro	Asp	Gly	Leu 630	Arg	Pro	Ile	Val	Asn 635	Met	Asp	Tyr	Val	Val 640
Gly	Ala	Arg	Thr	Phe 645	Arg	Arg	Glu	Lys	Arg 650	Ala	Glu	Arg	Leu	Thr 655	Ser
Arg	Val	Lys	Ala 660	Leu	Phe	Ser	Val	Leu 665	Asn	Tyr	Glu	Arg	Ala 670	Arg	Arg
Pro	Gly	Leu 675	Leu	Gly	Ala	Ser	Val 680	Leu	Gly	Leu	Asp	Asp 685	Ile	His	Arg
Ala	Trp 690	Arg	Thr	Phe	Val	Leu 695	Arg	Val	Arg	Ala	Gln 700	Asp	Pro	Pro	Pro
Glu 705	Leu	Tyr	Phe	Val	Lys 710	Val	Asp	Val	Thr	Gly 715	Ala	Tyr	Asp	Thr	Ile 720
Pro	Gln	Asp	Arg	Leu 725	Thr	Glu	Val	Ile	Ala 730	Ser	Ile	Ile	Lys	Pro 735	Gln
Asn	Thr	Tyr	Cys 740	Val	Arg	Arg	Tyr	Ala 745	Val	Val	Gln	Lys	Ala 750	Ala	His
Gly	His 755	Val	Arg	Lys	Ala	Phe	Lys 760	Ser	His	Val	Ser	Thr 765	Leu	Thr	Asp
Leu 770	Gln	Pro	Tyr	Met	Arg	Gln 775	Phe	Val	Ala	His	Leu 780	Gln	Glu	Thr	Ser
Pro 785	Leu	Arg	Asp	Ala	Val 790	Val	Ile	Glu	Gln	Ser 795	Ser	Ser	Leu	Asn	Glu 800
Ala	Ser	Ser	Gly	Leu 805	Phe	Asp	Val	Phe	Leu 810	Arg	Phe	Met	Cys	His 815	His
Ala	Val	Arg	Ile 820	Arg	Gly	Lys	Ser	Tyr 825	Val	Gln	Cys	Gln	Gly 830	Ile	Pro
Gln	Gly	Ser 835	Ile	Leu	Ser	Thr	Leu 840	Leu	Cys	Ser	Leu	Cys 845	Tyr	Gly	Asp

Met Glu Asn Lys Leu Phe Ala Gly Ile Arg Arg Asp Gly Leu Leu Leu
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 Arg Leu Val Asp Asp Phe Leu Leu Val Thr Pro His Leu Thr His Ala
 865 870 875 880
 Lys Thr Phe Leu Arg Thr Leu Val Arg Gly Val Pro Glu Tyr Gly Cys
 885 890 895
 Val Val Asn Leu Arg Lys Thr Val Val Asn Phe Pro Val Glu Asp Glu
 900 905 910
 Ala Leu Gly Gly Thr Ala Phe Val Gln Met Pro Ala His Gly Leu Phe
 915 920 925
 Pro Trp Cys Gly Leu Leu Leu Asp Thr Arg Thr Leu Glu Val Gln Ser
 930 935 940
 Asp Tyr Ser Ser Tyr Ala Arg Thr Ser Ile Arg Ala Ser Leu Thr Phe
 945 950 955 960
 Asn Arg Gly Phe Lys Ala Gly Arg Asn Met Arg Arg Lys Leu Phe Gly
 965 970 975
 Val Leu Arg Leu Lys Cys His Ser Leu Phe Leu Asp Leu Gln Val Asn
 980 985 990
 Ser Leu Gln Thr Val Cys Thr Asn Ile Tyr Lys Ile Leu Leu Leu Gln
 995 1000 1005
 Ala Tyr Arg Phe His Ala Cys Val Leu Gln Leu Pro Phe His Gln
 1010 1015 1020
 Gln Val Trp Lys Asn Pro Thr Phe Phe Leu Arg Val Ile Ser Asp
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 Thr Ala Ser Leu Cys Tyr Ser Ile Leu Lys Ala Lys Asn Ala Gly
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 Met Ser Leu Gly Ala Lys Gly Ala Ala Gly Pro Leu Pro Ser Glu
 1055 1060 1065
 Ala Val Gln Trp Leu Cys His Gln Ala Phe Leu Leu Lys Leu Thr
 1070 1075 1080
 Arg His Arg Val Thr Tyr Val Pro Leu Leu Gly Ser Leu Arg Thr
